



ARIZONA CLIMATE CHANGE ADVISORY GROUP MEETING #2

SEPTEMBER 29, 2005



TODAY'S AGENDA

- **CALL TO ORDER**
- **INTRODUCTIONS**
- **REVIEW OF MEETING AGENDA**
- **APPROVAL OF FIRST CLIMATE CHANGE ADVISORY GROUP (CCAG) MEETING SUMMARY**
- **REVIEW OF CCAG PROGRESS AND NEXT STEPS**
- **REVIEW AND APPROVAL OF “LONG LIST” OF POTENTIAL ARIZONA POLICY ACTIONS AND INITIAL PRIORITIES FOR TECHNICAL WORK GROUP (TWG) ANALYSIS**
- **REVIEW AND APPROVAL OF SUGGESTED TWG UPDATES TO EMISSIONS INVENTORIES AND FORECASTS**
- **REVIEW OF CROSS CUTTING REPORTING, REGISTRY AND EDUCATION ISSUES**
- **REVIEW OF BASIC DECISION CRITERIA AND QUANTIFICATION APPROACHES FOR EXAMINING POLICY OPTIONS**
- **CALL TO THE PUBLIC**
- **DISCUSSION OF AGENDA ITEMS AND TIME FOR NEXT MEETING**

PART 1

- **APPROVAL OF FIRST CLIMATE CHANGE ADVISORY GROUP (CCAG) MEETING SUMMARY**
- **REVIEW OF CCAG PROGRESS AND NEXT STEPS**

REVIEW OF TEN STEP PLAN

1. **DEVELOP INITIAL GHG INVENTORIES AND FORECASTS**
2. **IDENTIFY CONCEIVABLE GHG MITIGATION OPTIONS**
3. **IDENTIFY INITIAL PRIORITIES FOR EVALUATION**
4. **EVALUATE SUPPLY POTENTIAL, COST EFFECTIVENESS;
ANCILLARY AND FEASIBILITY ISSUES AS NEEDED**
5. **IDENTIFY BARRIERS, ALTERNATIVE POLICY DESIGN NEEDS**
6. **MODIFY, ADD OR SUBTRACT OPTIONS AS NEEDED**
7. **EVALUATE CUMULATIVE RESULTS OF OPTIONS**
8. **ITERATE TO CONSENSUS, WITH VOTES AS NEEDED**
9. **AGGREGATE OPTIONS INTO IMPLEMENTATION SCENARIOS**
10. **FINALIZE RECOMMENDATIONS AND REPORT LANGUAGE**

CCAG TASKS

- ✓ PRELIMINARY FACT FINDING
 - ✓ INVENTORY AND FORECAST OF GHG EMISSIONS
 - ✓ INVENTORY OF ACTIONS, STUDIES, ADVISORY GROUPS
- ? JOINT FACT FINDING
 - ✓ INVENTORY AND FORECAST OF EMISSIONS
 - ✓ POTENTIAL SOLUTIONS, PRIORITIES FOR ANALYSIS
 - ? EVALUATION APPROACHES
- ? JOINT POLICY DEVELOPMENT
 - ? POLICY DESIGN SPECIFICATIONS, IMPLEMENTATION MECHANISMS, ALTERNATIVE SOLUTIONS, FINAL RECOMMENDATIONS

DRAFT POLICY DESCRIPTIONS

- **POLICY DESCRIPTION**
 - INITIAL DESIGN PARAMETERS AND IMPLEMENTATION MECHANISMS
- **BAU POLICIES/PROGRAMS**
- **TYPES(S) OF GHG BENEFIT(S)**
- **TYPES OF ANCILLARY BENEFITS AND OR COSTS**
- **ESTIMATED GHG SAVINGS AND COSTS PER MMTCO₂E**
 - INSERT EXCEL WORKSHEET
- **DATA SOURCES, METHODS AND ASSUMPTIONS**
 - DATA SOURCES
 - QUANTIFICATION METHODS
 - KEY ASSUMPTIONS
- **KEY UNCERTAINTIES**
 - BENEFITS
 - COSTS
- **DESCRIPTION OF ANCILLARY BENEFITS AND COSTS, IF NEEDED**
 - BENEFITS
 - COSTS
- **DESCRIPTION OF FEASIBILITY ISSUES, IF NEEDED**
- **STATUS OF GROUP APPROVAL**

DRAFT CCAG REPORT

- EXECUTIVE SUMMARY
- BACKGROUND, PURPOSE AND GOALS
 - DESCRIPTION OF THE PROCESS
 - HISTORY AND STATUS OF STATE ACTIONS
 - STATE EMISSIONS INVENTORY & FORECAST
- POLICY RECOMMENDATIONS & RESULTS
 - AGRICULTURE AND FORESTRY
 - ENERGY SUPPLY
 - RESIDENTIAL, COMMERCIAL, INDUSTRIAL
 - TRANSPORTATION & LAND USE
 - WASTE MANAGEMENT
 - CROSS CUTTING ISSUES
- APPENDICES

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PART 2

- **REVIEW AND APPROVAL OF “LONG LIST” OF POTENTIAL ARIZONA POLICY ACTIONS, INITIAL PRIORITIES FOR TECHNICAL WORK GROUP (TWG) ANALYSIS**

DECISION CRITERIA

- **GHG REDUCTION POTENTIAL (CO₂E)**
- **DIRECT COST PER TON GHG REMOVED**
- **ANCILLARY ISSUES**
 - **CO-BENEFITS, COSTS, ETC.**
- **FEASIBILITY ISSUES**
 - **TECHNICAL, ECONOMIC, MARKET, PROGRAMMATIC, POLITICAL**

RCI OPTIONS

SECTION 1 – ENERGY EFFICIENCY PROGRAMS, FUNDS, GOALS		
#	RANK	OPTION
1.1	HIGH	UTILITY DSM PROGRAMS (ELECTRIC, GAS, OTHER)
1.2	HIGH	ENERGY EFFICIENCY FUNDS
1.3	HIGH	ENERGY EFFICIENCY REQUIREMENTS (GOALS, PORTFOLIO STANDARDS)
1.4	HIGH	MARKET TRANSFORMATION

RCI OPTIONS

SECTION 2 – APPLIANCE STANDARDS		
#	RANK	OPTION
2.1	HIGH	EXPANSION OF STATE-LEVEL STANDARDS
2.2	HIGH	SUPPORT FOR FEDERAL-LEVEL STANDARDS

RCI OPTIONS

SECTION 3 – BUILDINGS		
#	RANK	OPTION
3.1	HIGH	IMPROVED BUILDING CODES
3.2	HIGH	PROMOTION/INCENTIVES FOR IMPROVED DESIGN/CONSTRUCTION (LEED)

RCI OPTIONS

SECTION 6 – TECHNOLOGY SPECIFIC POLICIES		
#	RANK	OPTION
6.2	HIGH	INCENTIVES FOR CLEAN CHP

ES OPTIONS

SECTION 1.1 – RENEWABLE & LOW EMITTING ENERGY		
#	RANK	OPTION
1.1.1	HIGH	RENEWABLE PORTFOLIO STANDARD/ENVIRONMENTAL PORTFOLIO STANDARD (INCLUDING CONSIDERATION OF AN EXPANDED EPS)
1.1.2	HIGH	PUBLIC BENEFIT CHARGE FUNDS

ES OPTIONS

SECTION 1.5 – EMISSIONS POLICIES		
#	RANK	OPTION
1.5.1	HIGH	GHG CAP AND TRADE
1.5.2	HIGH	GENERATION PERFORMANCE STANDARD
1.5.3	HIGH	CARBON INTENSITY TARGET
1.5.6	HIGH	VOLUNTARY UTILITY GHG CAP &/OR TRADING
1.5.7	HIGH	CO ₂ /GHG TAX

TLU OPTIONS

SECTION 1 – PASSENGER VEHICLE GHG EMISSION RATES		
#	RANK	OPTION
1.1.1	HIGH	CALIFORNIA GHG EMISSION STANDARDS FOR LIGHT-DUTY VEHICLES; LINKED W/ 1.1.2 LEV2 EMISSION STANDARDS

TLU OPTIONS

SECTION 2 – LAND USE AND LOCATION EFFICIENCY		
#	RANK	OPTION
2.1.1	HIGH	“OPTION BUNDLE”
2.1.2		INFILL, BROWNFIELD REDEVELOPMENT
2.1.3		TRANSIT-ORIENTED DEVELOPMENT
2.1.4		SMART GROWTH TARGETED OPEN SPACE PROTECTION

AGRICULTURE OPTIONS

SECTION 4 – LAND USE CHANGE		
#	RANK	OPTION
4.2	HIGH	REDUCE PERMANENT CONVERSION OF FARM AND RANGELANDS TO DEVELOPED USES

FORESTRY OPTIONS

SECTION 6 – BIOMASS PROTECTION AND MANAGEMENT		
#	RANK	OPTION
6.1	HIGH	FOREST PROTECTION – REDUCED CLEARING AND CONVERSION TO NONFOREST COVER
6.5	HIGH	REFORESTATION/RESTORATION OF FORESTED LANDS
6.8	HIGH	THINNING AND DENSITY MANAGEMENT OF MANAGED STANDS
6.13		FIRE MANAGEMENT AND RISK REDUCTION PROGRAMS
6.14		ECOSYSTEM HEALTH RISK REDUCTION

FORESTRY OPTIONS

SECTION 6 – BIOMASS PROTECTION AND MANAGEMENT		
#	RANK	OPTION
6.15	HIGH	DROUGHT MANAGEMENT PROGRAMS
6.18		HABITAT MANAGEMENT PROGRAMS

FORESTRY OPTIONS

SECTION 7 – WOOD PRODUCTS AND WASTE		
#	RANK	OPTION
7.1	HIGH	EXPANDED MILL WASTE RECOVERY
7.2	HIGH	EXPANDED LOGGING RESIDUE RECOVERY
7.3	HIGH	EXPANDED USE OF SMALL DIAMETER TREES FOR WOOD PRODUCTS AND ENERGY
7.4	HIGH	EXPANDED USE OF WOOD PRODUCTS FOR BUILDING MATERIALS
7.5	HIGH	EXPANDED USE OF STATE AND LOCALLY-GROWN WOOD PRODUCTS

FORESTRY OPTIONS

SECTION 8 – ENERGY PRODUCTION		
#	RANK	OPTION
8.1	HIGH	EXPANDED USE OF FOREST BIOMASS FEEDSTOCKS FOR ELECTRICITY
8.2	HIGH	IMPROVE USE AND EFFICIENCY OF WOOD FOR DIRECT COMMERCIAL HEAT AND ENERGY
8.3	HIGH	IMPROVED ENERGY CAPTURE FROM WOOD WASTE COMBUSTION
8.5	HIGH	IMPROVED COMMERCIALIZATION OF BIOMASS GASIFICATION AND COMBINED CYCLE

BLACK CARBON

- **REVIEW AND APPROVE QUANTIFICATION METHODS IN TWGs**
 - **COMPLETE INVENTORY AND FORECAST**
- **ADD OPTIONS TO SECTOR BASED TWGs AS NEEDED**
- **REVIEW AND SUGGEST PRIORITIES AT NEXT CCAG MEETING**

NEXT STEPS TWGs

- **TWGs WORK ON:**
 - **ADDITION OF BLACK CARBON OPTIONS TO LIST**
 - **POLICY DESIGN PARAMETERS**
 - **INITIAL ASSESSMENTS OF BENEFITS, COSTS**
 - **SUGGESTED IMPLEMENTATION MECHANISMS**
 - **POTENTIAL BARRIERS TO CONSENSUS**
 - **ADDITIONAL OPTIONS TO CONSIDER**

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PART 3

- **REVIEW AND APPROVAL OF SUGGESTED TWG UPDATES TO EMISSIONS INVENTORIES AND FORECASTS**
- **REVIEW OF CROSS CUTTING REPORTING, REGISTRY AND EDUCATION ISSUES**
- **REVIEW OF QUANTIFICATION ISSUES**
- **AGENDA AND TIME FOR NEXT MEETING**
- **PUBLIC INPUT**

RCI INVENTORY

- **SUGGESTED REVISIONS:**
 - **NONE IDENTIFIED (1990 – 2003 GHG ESTIMATES)**

RCI FORECAST

- **SUGGESTED REVISIONS:**
 - **INCREASE RATE OF GROWTH OF ELECTRICITY USE TO REFLECT HIGHER GROWTH PROJECTIONS BY UTILITIES FOR SHORT TO MEDIUM TERM**
 - **FROM 3%/YR TO A VALUE BETWEEN 3.5 - 4%/YR, DEPENDING ON INPUT FROM MAJOR UTILITIES ON THEIR PROJECTED GROWTH RATES**

ENERGY SUPPLY

- **SUGGESTED INVENTORY REVISIONS:**
 - **NONE IDENTIFIED**

ENERGY SUPPLY

- **SUGGESTED FORECAST REVISIONS:**
 - **ACCOUNT FOR ELECTRICITY PEAK DEMAND GROWTH, NOT JUST TOTAL GROWTH IN ELECTRICITY**
 - **ACCOUNTING FOR PEAK DEMAND IMPLIES THAT SOME NEW NG UNITS WILL BE PEAKING UNITS (LESS EFFICIENT) AND LEAD TO HIGHER GHG EMISSIONS**
 - **OPTIONS FOR REVISION**
 - **PEAK DEMAND FORECAST FROM APS AND AEPCO, BUT APPLIED TO ALL AZ**
 - **APS AND AEPCO FORECASTS DIFFER CONSIDERABLY**
 - **PEAK DEMAND FORECAST FROM WECC FOR ARIZONA AND NEW MEXICO COMBINED**
 - **FORECAST IS ROUGHLY AN AVERAGE OF APS AND AEPCO**

TLU

- **SUGGESTED INVENTORY AND FORECAST REVISIONS:**
 - **NONE IDENTIFIED**

FORESTRY

- **SUGGESTED INVENTORY REVISIONS**
 - **DATA METHODS**
 - **ADJUST LAND USE/COVER CHANGE ESTIMATES TO CORRECT FOR RETAINED CARBON ON CONVERTED LANDS**
 - **CORRECT FOREST CHANGE DEFINITION BY CONVERTING ALL YEARS TO 10% COVER DEFINITION**
 - **ADD INVENTORY ESTIMATES FOR RANGELANDS, AS AVAILABLE**
 - **INCORPORATE HARVESTED WOOD PRODUCTS ESTIMATES**
 - **BUILD IN UNCERTAINTY ESTIMATES TO INVENTORY AND FORECASTS**
 - **KEY ASSUMPTIONS**
 - **IDENTIFY KEY UNCERTAINTIES**

FORESTRY

- **SUGGESTED FORECAST REVISIONS:**
 - **DATA METHODS**
 - **USE LINEAR EXTRAPOLATION OF LONG TERM AVERAGE, WITH EXPLICIT IDENTIFICATION OF KEY SENSITIVITIES AND UNCERTAINTIES**
 - **IDENTIFY LONG TERM LAND USE/COVER CHANGE RATES FROM NRI**
 - **KEY ASSUMPTIONS**
 - **FUTURE CHANGE CONSISTENT WITH PAST**

AGRICULTURE

- **SUGGESTED INVENTORY AND FORECAST REVISIONS:**
 - NONE IDENTIFIED

REPORTING

- **PURPOSE AND GOALS**
 - SELF-AWARENESS & CAPACITY-BUILDING
 - DIAGNOSIS AND TRACKING OF EMISSIONS
 - PLANNING FOR SOLUTIONS
 - “ENABLER” FOR OTHER GOALS (E.G., REGISTRY)
- **KEY TECHNICAL AND POLICY ISSUES**
 - MANDATORY V. VOLUNTARY
 - GASES, APPLICABILITY, AND “BOUNDARY” ISSUES
 - MEASUREMENT AND VERIFICATION
 - OPERATIONAL ISSUES

REGISTRIES

- **PURPOSE AND GOALS**
 - MEASUREMENT OF EMISSIONS REDUCTIONS
 - RECOGNITION AND CREDIT, INCLUDING “BASELINE PROTECTION”
 - CAPACITY BUILDING (TRACKING, MANAGING, LEARNING CURVE, COMPETITIVE ADVANTAGE, ETC.)
 - COOPERATION ACROSS BORDERS
- **KEY TECHNICAL AND POLICY ISSUES**
 - POLICY OBJECTIVES SOUGHT
 - OWNERSHIP; DIRECT/INDIRECT; DOUBLE-COUNTING
 - “ADDITIONALITY”; VERIFICATION
 - OPERATIONAL ISSUES (TRANSPARENCY, AGGREGATION, ETC.)

EDUCATION

- **PURPOSE AND GOALS**
 - PUBLIC AWARENESS OF NEED FOR ACTION
 - AWARENESS OF SPECIFIC AZ PROGRAMS
 - AWARENESS THAT INDIVIDUAL ACTIONS COUNT AND ARE REWARDED
- **KEY TECHNICAL AND POLICY ISSUES**
 - AUDIENCE(S); MESSAGES
 - APPROACHES; RESPONSIBILITY
 - COSTS; RESULTS

NEXT STEPS CC-ISSUES

- **FORM TWG**
- **IDENTIFY POTENTIAL APPROACHES**
- **IDENTIFY BASE AZ ACTIONS**
- **IDENTIFY CCAG PRIORITIES**
- **DEVELOP POLICY DESIGN FOR OPTIONS**
- **COORDINATE WITH SECTOR BASED TWGs**
- **DEVELOP FINAL RECOMMENDATIONS**

BENEFIT-COST ANALYSIS

- **GHG REDUCTION POTENTIAL (CO₂E)**
- **DIRECT COST PER TON GHG REMOVED**

BENEFIT-COST ANALYSIS

- **KEY ISSUES**
 - **MONETIZATION OF BENEFITS AND COSTS**
 - **PROJECT DISCOUNT RATE**
 - **TREATMENT OF RISK, UNCERTAINTY**
 - **TIME PERIOD OF ANALYSIS**
 - **SECONDARY BENEFITS, COSTS**
 - **LEVEL OF ANALYSIS**

BENEFIT-COST ANALYSIS

- **SUGGESTED REFERENCES:**

- **OMB GUIDELINES AND DISCOUNT RATES FOR BENEFIT-COST ANALYSIS OF FEDERAL PROGRAMS**

- WWW.WHITEHOUSE.GOV/OMB/CIRCULARS/A094/A094.HTML

- **US EPA SCIENCE ADVISORY BOARD 2000 COST BENEFIT GUIDELINES**

- [HTTP://YOSEMITE.EPA.GOV/EE/EPA/EED.NSF/WEBPAGES/GUIDELINES.HTML](http://YOSEMITE.EPA.GOV/EE/EPA/EED.NSF/WEBPAGES/GUIDELINES.HTML)

- **ARIZONA STATE ECONOMIC GUIDELINES**

- **CCS STATE GHG PROCESS EXPERIENCE**

PUBLIC INPUT

AGENDA NEXT MEETING

- **CONSIDERATION OF ADDITIONAL PRIORITIES FOR ANALYSIS**
- **PROGRESS REPORT ON INITIAL POLICY DESIGN, ASSESSMENT OF PRIORITY OPTIONS**
- **GUIDANCE ON POLICY DESIGN, IMPLEMENTATION MECHANISMS FOR PRIORITY OPTIONS**
- **BRIEFING ON STATE GHG TARGETS AND GOALS**

DATE NEXT CCAG MEETING

- **SUGGESTED:**
 - **DECEMBER 20, 2005**
 - **PHOENIX**